

servient-pyramidal masses;" a doctrine that must be received with some reservation, as it would place the Greek temples, as well as various palatial and other buildings justly considered models of architectural beauty, in an inferior rank of architectural production. To make a complete pyramid of decoration there must, in most buildings, be large extraneous and useless features, having no relation, and being non-essential, to internal proportion and beauty: "a beautiful thing" and "a beautiful building," it should be remembered, are different ideas. Architectural beauty is beauty decorating the essential forms and proportions of architecture; and perfect architectural beauty is the highest combination of fitness and beauty, or the highest abstract beauty compatible with the destination of the highest class of buildings. But, even in the highest class of buildings, the pyramidal outline may not be called for by fitness and due proportional beauty of internal distribution: nay, it may be inadmissible, as æsthetic beauty in an architectural exterior must always be subordinate to internal beauty and fitness.

Buildings, however, containing a single apartment, or embodying a single idea as to use, such as places of worship, theatres, mausolea, &c., may advantageously be so composed; but to those of complex use containing many divisions or parts, as colleges, the principle cannot so well be applied.

There is another principle, however, near akin to this, which should be observed in all buildings pretending to architectural character, viz., that which demands delicacy of line and surface, and minuteness of division to increase towards the summit; and the proper arrangement, vertically, of the geometrical forms. Some otherwise beautiful buildings we meet with transgress this geometrical law of composition, having grave unbroken lines and square forms above more elegant ones; a fault of St. George's Hall, Liverpool, the solemnity of whose upper story, or attic order, which looks flat and heavy, is more suited to Doric severity than to Corinthian lightness and elegance. On the same principle are condemnable the long harsh lines of the pyramidal spire above the colonnade in classic or Italian steeples; a fault not to be laid to the charge of the Gothic steeples, with whose square buttresses or octagonal turrets they perfectly harmonize.

In the application of the dome there are many points to be observed:—1st. It should be placed only at the summit of a pile of buildings, not lower down with straight inclined roofs above it, as in some Italian churches, crowning a low vestry, or other appendage; nor overtopped by minarets, as in the east. It must reign supreme among the roofs, if more than one, and be the highest skyline of the building. The propriety is obvious of so placing the feature containing the softest modulation of chiaroscuro, and where every degree of light and shade that beams from the building below is wrought into the sweetest harmony. Neither should the dome be seen rising immediately behind a large pediment, as is too often its fate, which, in front views, completely mutilates it; and if it have a glazed eye, the glazed surface should conform to the circular sweep, and not cause any break perceptible from below.

But the most important consideration is size, or relative size: a proportionate magnitude is essential to effect in the dome;—but the objection to raising domes of a large size hitherto has been the great expense of stone ones. Stone, however, is not the only suitable material. Iron might, I conceive, be used with great advantage and propriety in the formation of the dome, to the true idea of which stone is no more essential than to any other kind of roof. The use of stone in arch and dome constructions is not, as some contend, essential to real architecture: real architecture is architecture that serves our purposes, and combines truth, beauty, and stability, obtained with the least cost. If we have a material that offers superior advantages to stone, which iron does, we have a right to adopt it. Constructed of iron the dome would lose none of its æsthetic value: the man of

taste would gain as much pleasure, I conceive, from the view and contemplation of an iron dome, as he would from a stone one. We should direct our minds of prejudice against materials, enlist the elements at our command into the service of art, and apply every material to that purpose for which it is best fitted. Our architecture, when we do so, will grow: a beautiful, expressive, and powerful art will organize itself out of the varied elements of nature and requirements of life. For the dome, indeed, iron is admirably adapted, and holds out many advantages: we could cover a larger space with it than by any other material, and form a cupola that in majesty of proportions would outstrip all the foregoing; and this with less recourse to and dependence on the deductions of algebra and fluxions; and we could not only have greater choice and command of form, proportion, and curvature, which would not be limited by reference to abutment and stability, but the enormous expenditure of materials and labour employed, often vainly, to secure durability, would be saved. That we could thus cover with safety a larger space with the iron is a most important advantage,—a great boon to architecture, which has to do with the great and sublime as well as with the beautiful: we may emulate nature not only in the latter, but in the former; and there is a call for it in the soul, a craving for the sublime as well as for the beautiful. Moreover, emotions of the sublime, when raised by human works, are peculiarly gratifying and elevating to the mind: we acquire a great idea of the builder, our species, and ourselves. A sense of the power of man so to compete with nature must elevate the mind of the reflective and susceptible spectator itself, and strengthen and prepare it for vast conceptions. We must fall infinitely below nature in dimensions, but the deficiency is made up by the impress of man's power, which is associated with great architectural achievements. Imagine, for a moment, whilst walking up the nave of Amiens or Milan the whole to be a natural production, and the effect diminishes instantly, and we feel that the source of its former impressiveness was its being the fruit of the natural greatness of the soul: it was an intimation of the power and expansion of the designer's imagination, and was the clothing of a mighty human idea. Architecture has her means of producing the sublime: magnitude of scale is an element of grandeur, and is more important in architecture than in the other two arts: the temples of Egypt, the tombs of India, are calculated to fill the eye and satisfy the mind with their actual greatness and massiveness, the boldness of their parts and proportions, and their consequent grandeur of light and shadow. But great dimensions will not produce the sublime if the mass be cut up into small parts: in addition to largeness of dimensions there must be greatness of manner—fewness and largeness of divisions. Great cylindrical buildings, as the Roman Pantheon, exhibit it; as also great square ones, which produce, by rectangular and rectangular planes, the greatest contrast of light and shade. The Roman Amphitheatre, its huge circumference

"Stretched like eternity around,"

must ever raise emotions of the sublime in the breast of the spectator.

With this greatness of manner as well as with greatness of dimensions, the dome will peculiarly harmonize: it is an important element of the grand style in architecture, and there is no form in which magnitude is so befitting, in which effect is so much increased by increase of dimensions: no architectural feature on a large scale, or indeed on any scale, has the simplicity of the dome. In fine, unlike most, if not all, other features, on any scale it is beautiful: small, it is graceful: magnify it, and you have grandeur.\*

S. H.

GAB. LEICHTER.—The contractor asks us to contradict the statement as to the omission of mains at the market-house, which we quoted last week from a provincial journal.

\* To be continued.

#### AIR SHIPPING AND FLYING MACHINERY.

THE strenuous endeavours of men of all civilised nations to acquire dominion over the air, really merit some little reward. They are certainly not very likely, however, to meet with it by ordinary ballooning. We happen to live at the west end, within sight of almost daily toying—and something not so harmless, sometimes—with balloons, and are convinced that the monkeys sent up in fire-balloons are just about as likely as the humans—poor unfortunate women among them too—sent up in those of larger calibre, to advance the cause of useful æro-motion by the present practice, which has sunk into mere mountebankism, both here and on the continent. Even the new balloon like an enormous bolster or pillow, with little fan-wings scarcely perceptible by comparison, and which was to redeem ballooning from contempt, takes precisely the same course, with very much the same velocity, as the monkeys and the women. It is full time, therefore, that some dash were made in another direction, were it but to break through the settled-down and hopeless absurdities of modern ballooning, even though with something almost as hopeless and absurd itself. We should then have a change of idea and some novelty that might at least be suggestive of further and more hopeful experiment.

An "ærostatic society," we perceive, has been established at Sheffield.

"It is announced," says the local *Independent*, "that 'the latest scientific improvement of our age is about to be verified,' and the objects of the society are thus set forth:—This society is instituted for the purpose of aiding and carrying out improvements of a purely scientific character. Illustrations will be given in diagrams, upon *aerostation by wings*, which will enable an athletic person to fly by a simple piece of mechanism over hill and dale through the air at great velocity, without the aid of steam or other but mechanical contrivances." Mr. G. Cavill is secretary, and a Mr. Miers Hind, engineer. There have been so many wonders accomplished that one can hardly be surprised at the indomitable faith with which men were wont to seek the philosopher's stone, *verre mont*, *indeed!* The *Independent* does not seem to know that some of our ablest chemists are at it again; the elixir vite, and the perpetual motion. And if we should chance to see some of our 'athletic' friends 'flying over hill and dale,' over houses, towers, and steeples, with the speed of carrier pigeons, we shall be eager to record the sublime achievement. Whether they will be able to combine in their athletic frames strength and lightness in the requisite proportions, has doubtless been profoundly considered by the engineer."

This bold, yet not very novel, idea certainly goes beyond anything ever seriously hoped for in the most youthful and most sanguine dreams of our youth—unless it were in *dreams* indeed: there we have had the supreme felicity of sailing at will, with no less majestic than magical facility, through the ambient air—buoyant as a cork in quicksilver—without any wings at all; but the nearest approximation we ever recollect of any one, till now, having made, in actual and successful practice, to such a faculty, was that of a recent aeronaut who had bounded to such immense distances while holding on by a balloon as might have made the most "athletic" flea in existence envious. We suspect, however, that the Sheffield *Aerostatic Society* are not likely to make much *motory* progress unless they "hold on by the balloon" too. We can conceive how an athlete, with his weight so far, but not altogether, balanced by a balloon, might manage to fly, like some winged Atlas, with the globe on his shoulders, and wings moved by mechanism worked by "all fours," though even then the balloon itself would be a formidable obstacle to advancement except with the wind; but we fear it will indeed require an athletic frame, and a small and wiry one, to work such a mechanism effectually without the help of gaseous levitation. Yet we know that an eagle can fly with the dead-weight of a lamb or child added to his own, and thus readily reach his aerie. And moreover, if half of what *La Patrie* of Paris states be true, a most unlikely success has been attained by a very apocry-